
RESEARCH INTEREST

My research interests encompass a diverse range of topics, including: - Automatic Audio Captioning - Language Based Audio Retrieval - Audio Question Answering - Adversarial Attacks on Deep Models - Clinical NLP - Legal NLP - Sports AI.

PUBLICATIONS

- A. M. Tripathi, **S. R. Behera**, O. J. Pandey, and R. Hegde, *Few-shot Audio Classification Using An Enhanced Lightweight Prototypical Network*, IEEE/ACM Transactions on Audio, Speech and Language Processing (TASLP), 2023. [H-Index=66, Impact Factor=4.364]
- **S. R. Behera**, P. B. Reddy, A. M. Tripathi, B. R. Megavath, and T. Karavadi, *Towards Multi-Lingual Audio Question Answering*, Conference of the International Speech Communication Association (INTERSPEECH), 2023. [Core Rank=A*]
- A. M. Tripathi, **S. R. Behera**, and K. Paul, *Reverse Adversarial Attack To Enhance Environmental Sound Classification*, IEEE International Joint Conference on Neural Networks (IJCNN), 2022. [Core Rank=A]
- A. M. Tripathi, **S. R. Behera**, and K. Paul, *K-Defensive Bit Planes: Defense Against Adversarial Attacks*, IEEE International Joint Conference on Neural Networks (IJCNN), 2022. [Core Rank=A]
- A. M. Tripathi, **S. R. Behera**, and K. Paul, *Investigation of Performance of Visual Attention Mechanisms for Environmental Sound Classification: A Comparative Study*, IEEE International Joint Conference on Neural Networks (IJCNN), 2022. [Core Rank=A]
- A. M. Tripathi, **S. R. Behera**, and K. Paul, *Adv-IFD: Adversarial Attack Datasets for An Intelligent Fault Diagnosis*, IEEE International Joint Conference on Neural Networks (IJCNN), 2022. [Core Rank=A]
- **S. R. Behera** and V. S. Vedula, *Mining Temporal Changes in Strengths and Weaknesses of Cricket Players Using Tensor Decomposition*, In proceedings of the 28th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN), Bruges, Belgium, 2020. [Core Rank=B]
- **S. R. Behera**, P. Agrawal, A. Awekar and V. S. Vedula, *Mining Strengths and Weaknesses of Cricket Players Using Short Text Commentary*, 2019 18th IEEE International Conference On Machine Learning And Applications (ICMLA), Boca Raton, FL, USA, 2019. [Core Rank=C]
- **S. R. Behera** and V. S. Vedula, *Learning Strength and Weakness Rules of Cricket Players using Association Rule Mining*, In proceedings of the 8th Workshop on Machine Learning and Data Mining for Sports Analytics (MSLA), ECML-PKDD Workshop, Virtual, 2021.
- **S. R. Behera** and V. S. Vedula, *Stats Aren't Everything; Learning Strengths and Weaknesses of Cricket Players*, In proceedings of the 7th Workshop on Machine Learning and Data Mining for Sports Analytics (MSLA), ECML-PKDD Workshop, Ghent, Belgium, 2020.
- **S. R. Behera**, *Performance Analysis of Batsman against Spin Bowling and Fast Bowling in Cricket*, Ohio State Sports Analytics Association Conference (OSUSAAC), Columbus, United States, 2020. (*Best Research Award*)
- **S. R. Behera** and V. S. Vedula, *Video Data Do More. Tracking Data Do Much. Text Commentary Data Do Much More*, Carnegie Mellon Sports Analytics Conference (CMSAC), Pittsburgh, United States, 2020.

EXPERIENCE

- **Reliance Jio AICoE**

Senior Research Scientist

Hyderabad, India

Sep 2021 - Present

- **Active Learning based Speech Inference Engine:** Developed an end-to-end framework for call-center and clinical text data collection, pre-processing, and normalization. Trained probabilistic and neural language models using the collected text data.
- **Text to Speech Engine:** Developed an end-to-end framework for text collection, pre-processing, normalization, and text generation. Generated semantically similar sentences using Pegasus and T5 paraphraser.
- **Sentiment Analysis:** Performed sentiment analysis on call centre transcripts to extract emotions and sentiments of customers and agents during and post the call to further improve customer experience.
- **Contract Review AI:** Developed a CRA system that learns to automatically extract and identify key clauses from contracts, thus helping in-house legal teams to automate the contract review process during pre-signature phase.
- **Conversational AI:** Developing a voice assistant that can engage in human-like dialogue, capturing context, and providing intelligent responses.

- **Reliance Jio AICoE**

Research Intern

Hyderabad, India

Jun 2021 - Aug 2021

- **Cricket Analytics for Mumbai Indians:** Developed an end-to-end framework for cricket text commentary collection (from ESPNcricinfo and IPLT20 websites), text normalization for Automatic Speech Recognition, and similar commentary generation (GloVe and WordNet) for Text-to-Speech synthesis.

- **IIT Guwahati**

Teaching Assistant

Guwahati, India

Jul 2013 - Dec 2020

- **Courses:** Software Engineering (Fall-2018, Fall-2019), Design and Analysis of Algorithms (Fall-2017), Computer Vision using Machine Learning (Fall-2016), Discrete Mathematics (Fall-2015), Probability and Linear Algebra (Spring-2014), Data Communication (Fall-2013).
- **Labs:** Database (Spring-2015, Spring-2016, Spring-2020, Fall-2020), Computing (Spring-2017, Spring-2018, Spring-2019), Data Structures (Fall-2014).

EDUCATION

- **PhD in Computer Science and Engineering (Machine Learning)**

IIT Guwahati (Thesis: Learning Player-specific Strategies using Cricket Text Commentary)

Guwahati, India

Jul. 2015 – Sep. 2021

- **M.Tech in Computer Science and Engineering**

IIT Guwahati (CPI: 7.99)

Guwahati, India

Jul. 2013 – Jun. 2015

- **B.Tech in Computer Science and Engineering**

VSSUT Burla (CPI: 8.30)

Burla, India

Jul. 2008 – Jun. 2012

PROJECTS

- **Spectral Clustering Using Convex and Constrained Settings:** Proposed framework to incorporate pairwise constraints into semi-definite spectral clustering. Extended it to active and self-taught learning settings (Matlab)
- **Community Detection Using Greedy Plex Algorithm:** Proposed a community detection algorithm (C++)
- **Virtual Learning Environment:** Implemented an e-learning system (HTML, PHP, JavaScript, and MySQL)
- **Web Search Engine:** Built a web search engine (Python, HTML, PHP, and JavaScript)

PROGRAMMING SKILLS

- **Languages:** Python, R, C, Matlab, SQL
- **Others:** PyTorch, FastText, spaCy, Flair, AllenNLP, TextBlob, Core NLP, Gensim, NLTK, Huggingface, Fairseq, Pandas, NumPy, SciPy, Scikit-learn, Seaborn, Matplotlib, Plotly, R Shiny

MISCELLANEOUS

- **Best Research Award:** Ohio State Sports Analytics Association Conference (OSUSAAC), 2020, Columbus, USA
- **GATE 2013:** All India Rank 696 (99.68 percentile)
- **Program Committee Member:** ECML-PKDD 2020
- **Reviewer:** IEEE VIS 2020, IEEE VIS 2021, IEEE VIS 2022
- **Grants and Fellowships:** MHRD Government of India Fellowship for MTech and PhD
- **Organizer:** Advaya 2015, PG cultural festival at IIT Guwahati
- **Technical Officer:** Student gymkhana council 2014-2015 at IIT Guwahati

INTERESTS

Cricket, Biking, Movie Making, Sports Analytics